



INDEPENDENT
TRANSPORT
SAFETY
REGULATOR

Implementation of the NSW Government's response

to the Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident

Reporting period: October - December 2012

REPORT 32

ITSA

Safe transport for NSW

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The Hon. Gladys Berejiklian
Minister for Transport
Level 35 Governor Macquarie Tower
1 Farrer Place
Sydney NSW 2000

Dear Minister

I am pleased to provide the 32nd quarterly report on the implementation of the NSW Government's response to the recommendations contained within the *Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident*.

This report reflects implementation progress from 1 October to 31 December 2012.

At the close of this period, there are two open recommendations. The Independent Transport Safety Regulator (ITSR) reports publicly on open recommendations.

Recommendations that have been closed subject to implementation of an approved program or plan are monitored as part of ITSR's ongoing regulatory activities to ensure these are fully implemented.

Further information about the history and progress of the implementation of all recommendations can be found on the ITSR website. This information includes:

- copies of previous ITSR quarterly reports
- a document containing all 177 recommendations
- a summary of the 8 recommendations that have been closed subject to the implementation of an approved program or plan.

Yours sincerely

SIMON FOSTER
Acting Chief Executive

Summary of progress

The Independent Transport Safety Regulator (ITSR) is responsible for overseeing the implementation of the NSW Government's response to the recommendations contained within the *Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident*.

This role includes verifying that recommendations have been effectively implemented or that an approved program or plan is in place for implementation. ITSR produces quarterly public reports on the progress of open recommendations.

At the end of the reporting period, the status of the 177 recommendations (including 127 recommendations and 50 sub-elements) was as follows:

- 2 remain open
- 8 are closed subject to the implementation of an approved program or plan
- 161 are closed and verified as fully implemented
- 1 is closed because it is no longer applicable
- 5 are rejected by the government and these were closed.

The methodology and taxonomy for the classification system used for the Waterfall recommendations are in Appendix 1 and 2 respectively.

On 1 July 2012 responsibility for the delivery of RailCorp's automatic train protection project and the digital train radio system project were transferred to the Transport Projects Division within Transport for NSW (TfNSW). RailCorp staff working on these projects have been assigned to TfNSW to ensure no disruption to the delivery of these projects.

The two open recommendations, which are outlined in further detail in Appendix 3, are:

- 32: RailCorp should progressively implement, within a reasonable time, level 2 automatic train protection (ATP). ATP systems provide automatic enforcement (slowing/braking) of authority (speed/location) if a train is behaving in an unauthorised way. Implementation will involve significant infrastructure change and is the subject of a major project.

The interim target date of 31 August 2012 was achieved on 29 June 2012 which was earlier than originally expected. This is when the ATP system testing commenced using the ATP V set test train and the newly commissioned ATP trackside equipment between Gosford and Wyong. This testing will allow TfNSW's configuration of the ATP system to be fine tuned prior to the second phase of testing using an OSCAR train and a more extensive area of the track in 2013.

The next major milestone for this project will be the fitting of trackside equipment to the section of track from Berowra to Wyong, which TfNSW had expected to complete by the end of February 2013. TfNSW has advised that the completion date of February 2013 is dependent on its contractor rectifying a non compliance preventing final Type Approval being granted for the lineside electronic units.

During November 2012, TfNSW's contractor achieved European design certification (used to establish Type Approval) for a key component of the trackside equipment which acts as the interface between the existing signalling system and the ATP system. The trackside construction between Berowra and Wyong is complete with the exception of the lineside

electronic units (a non compliance preventing final Type Approval) which has the potential to delay the February 2013 milestone completion date.

The ATP installation on the first two OSCAR prototype trains is almost complete, with installation underway on the second train during the fourth quarter 2012. The two trains will be commissioned in the second quarter of 2013. These trains will be used for system testing operation once the trackside is commissioned.

Subject to the successful completion of these actions, TfNSW expects that the first OSCAR train fitted with ATP equipment, will be commissioned into passenger service and operate between Berowra and Wyong in 2014.

- 38: There must be compatibility of communications systems throughout the rail network. It is essential that all train drivers, train controllers, signallers, train guards and supervisors of trackside work gangs in NSW be able to communicate using the same technology.

TfNSW advised that the DTRS project is progressing according to the delivery schedule and will achieve the target implementation date of 30 April 2015. Completion of the DTRS project includes completion of the DTRS fixed network and fit out of the train cabs.

The installation of DTRS base stations for the fixed network continued to be progressed by TfNSW. Installation of DTRS base station sites includes a 21 day period for community feedback on proposed installations. This consultation has now been completed for 80 DTRS base station sites with consultation closed and determination pending at a further 19 sites. So far 36 base station sites have progressed to the construction phase. Release of the remainder of approximately 250 DTRS base station sites to community consultation will now be undertaken in early 2013 to ensure consultation periods do not coincide with school holidays which could adversely affect the consultation process. This change in consultation timing will not impact the system delivery date.

As of 7 December 2012, installation of the second core site has been completed and power has been connected. TfNSW's contractor has delivered the detailed design integration report for the system which was due in December together with detailed systems design for the DTRS. These designs and the associated integration report are under now review.

This statement provides implementation progress from 1 October to 31 December 2012.

Progress on recommendations

Recommendation 32

In August 2010, the NSW Government gave in-principle funding approval for the rollout of the three stages of RailCorp's (now TfNSW) ATP program and full funding approval for the implementation of stage 1 of the program. Expected completion dates for the three stages are:

- stage 1 – 2011 to 2017
- stage 2 – 2013 to 2018
- stage 3 – 2015 to 2021.

The system chosen to implement TfNSW's ATP program is the European Train Control System (ETCS). The rollout of this program will be in three stages. Stage 1 involves the supply of ATP equipment for TfNSW's OSCAR and Tangara train fleets and the installation of ATP equipment to

600 kilometres of the CityRail network. Stages 2 and 3 will involve the installation of ATP equipment across the rest of RailCorp's electrified network and onboard the Waratah and Millennium train fleets.

In February 2011 RailCorp (now TfNSW) awarded four separate supply contracts including ETCS supply and engineering services for trackside and onboard, and through life support for trackside and onboard.

The trackside supply and engineering services contract includes the provision of lineside electronic units, balises, programming tools, engineering services and engineering support. The onboard supply and engineering services contract includes the provision of driver machine interface equipment, European vital computer equipment, engineering services and engineering support. This contract also includes a trial of the ETCS level 2 between Sutherland and Cronulla, although an alternative site is being investigated to allow easier connection to the signalling system and better access for on track testing.

The onboard through life support contract commenced in the second quarter of 2012 and will continue until five years after the completion of the ATP installation on the final train covered by the contract. The trackside through life support contract commencement has been delayed due to Type Approval issues surrounding the lineside electronic units, one of the key components provided under the trackside contract. The trackside through life support contract is anticipated to commence in 2013 without impacting the project delivery.

Level 1 ETCS involves the overlay of ATP on the coloured light signalling system to transmit authorities for trains to proceed on the network via the track mounted balises. Level 2 ETCS involves the connection of ATP to the signalling interlockings to transmit authorities for trains to proceed via GSMR radio. When all trains operating in a Level 2 area are ETCS fitted, the coloured light signalling system may be removed.

The interim target date of 31 August 2012 was achieved on 29 June 2012 which was earlier than originally expected. This is when the ATP system testing commenced using the ATP V set test train and the newly commissioned ATP trackside equipment between Gosford and Wyong. This testing will allow TfNSW's configuration of the ATP system to be fine tuned prior to the second phase of testing using an OSCAR train and a more extensive area of the track in 2013.

The next major milestone for this project will be the fitting of trackside equipment to the section of track from Berowra to Wyong, which TfNSW had expected to complete by the end of February 2013. TfNSW has advised that the completion date of February 2013 is dependent on its contractor rectifying a non compliance preventing final Type Approval being granted for the lineside electronic units.

During November 2012, TfNSW's contractor achieved European design certification (used to establish Type Approval) for a key component of the trackside equipment which acts as the interface between the existing signalling system and the ATP system. The trackside construction between Berowra and Wyong is complete with the exception of the lineside electronic units (a non compliance preventing final Type Approval) which has the potential to delay the February 2013 milestone completion date.

The ATP installation on the first two OSCAR prototype trains is almost complete, with installation underway on the second train during the fourth quarter 2012. The two trains will be commissioned in the second quarter of 2013. These trains will be used for system testing operation once the trackside is commissioned.

Subject to the successful completion of these actions, TfNSW expects that the first OSCAR train fitted with ATP equipment, will be commissioned into passenger service and operate between Berowra and Wyong in 2014.

Recommendation 38

This recommendation requires implementation of TfNSW's new digital train radio system (DTRS) and the development of a national communications standard by the Rail Industry Safety and Standards Board (RISSB).

The new DTRS currently being designed will enhance communication between trains and network control in an emergency as well as enable communication between other staff for rail operations on the RailCorp network.

It should be noted that all rail safety workers are currently able to communicate with each other but not using the same technology.

The Australasian Railway Association, in consultation with operators and rail safety regulators, developed a national approach on communications systems to ensure that agreed functionality and compatibility requirements were included in the national railway communications standard developed by RISSB. In December 2010, RISSB published the *Railway Communications Standard – AS7660* for implementation.

TfNSW advised that the DTRS project is progressing according to the delivery schedule and will achieve the target implementation date of 30 April 2015. Completion of the DTRS project includes completion of the DTRS fixed network and fit out of the train cabs.

The installation of DTRS base stations for the fixed network continued to be progressed by TfNSW. Installation of DTRS base station sites includes a 21 day period for community feedback on proposed installations. This consultation has now been completed for 80 DTRS base station sites with consultation closed and determination pending at a further 19 sites. So far 36 base station sites have progressed to the construction phase. Release of the remainder of approximately 250 DTRS base station sites to community consultation will now be undertaken in early 2013 to ensure consultation periods do not coincide with school holidays which could adversely affect the consultation process. This change in consultation timing will not impact the system delivery date.

As of 7 December 2012, installation of the second core site has been completed and power has been connected. TfNSW's contractor has delivered the detailed design integration report for the system which was due in December together with detailed systems design for the DTRS. These designs and the associated integration report are under now review.

Methodology

This section outlines the processes ITSR has instituted to develop and monitor the implementation plan for the NSW Government's response to the *Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident* (SCOI final report).

Implementation plan

ITSR has reviewed the SCOI final report and determined action required to implement each recommendation in line with the government's response and which company or agency has responsibility for that action. These expectations then formed the basis for determining whether the response put forward by a company or agency is appropriate to meet the recommendation and/or satisfy the safety objective of the recommendation. Responsible agencies have assigned indicative timeframes for each safety action and ITSR will review the appropriateness of each. Timeframes agreed with responsible companies or agencies have, to the greatest extent possible, been made realistic and achievable. Details of the implementation plan for outstanding issues and progress against it may be found in Appendix 3.

Classification system for recommendations

In order to provide a graduated view of progress against the implementation plan, ITSR has developed a classification system to indicate the relative status of each recommendation. The taxonomy for the classification system has been drawn from accepted international practice and is listed in Appendix 2.

The process for assigning status to a recommendation is as follows:

- Step 1** The government's response to the SCOI final report determined which recommendations were accepted. ITSR has articulated its expectations in regards to all remaining recommendations.
- Step 2** All accepted recommendations are assigned the status *open – await response*. These recommendations are then referred by ITSR to the relevant company or agency to prepare a response to the recommendation(s) and submit it to ITSR.
- Step 3** ITSR reviews the response and determines whether it is acceptable or not. If it is acceptable then the status of the recommendation is assigned either *open – acceptable response* or *open – acceptable alternative response*. A recommendation would be assigned an *open – acceptable alternative response* status when the intent of a recommendation will be met but will be implemented by alternative means. If the response is not acceptable then the recommendation is assigned the status of *open – response rejected by ITSR*. In this case, the company or agency is informed of the decision and requested to re-submit a revised response taking into account ITSR's concerns. This process continues until the response to the recommendation is accepted by ITSR.
- Step 4** ITSR monitors progress of all accepted responses to ensure a company or agency is meeting agreed implementation timeframes. This is done through both desktop reviews of reports received by agencies and in-field inspections to verify progress claimed.

Step 5 Once a company or agency has completed a required action it will submit to ITSR a claim for closure of the recommendation. This application indicates that the company or agency believes it has completed the required action. The status of the recommendation is changed to *open – company claims closure*.

Step 6 In most cases, ITSR will verify closure through an in-field compliance inspection or audit. Once verification has taken place the recommendation status is changed to indicate it is *closed – action verified*.

Notes:

1 Some recommendations may be verified by examination of documentation submitted by the agency that claims closure rather than through an in-field inspection. In these cases, recommendation status is indicated by *closed – action not verified*.

2 Some recommendations may be verified *closed – subject to the implementation of an approved program or plan*. In these cases, ITSR agrees to closure if the chief executive of the organisation has approved the program or plan and ITSR is of the view that it meets the government's response to the recommendation. This categorisation is used generally when implementation may take place over a prolonged period of time and/or capital expenditure is involved.

This process will continue until all recommendations are closed.

Taxonomy for classification system

Status		Definition
Open	Await response	This status is automatically assigned to an accepted recommendation. Affected parties will be asked to submit their response for implementing the recommendation to ITSR.
Open	Response received	ITSR has received a response from an affected party and this response is under review by ITSR. It has not yet been accepted by ITSR.
Open	Acceptable response	ITSR agrees that the planned action, when completed, meets the recommendation.
Open	Acceptable alternative response	ITSR agrees that alternative action, when completed, satisfies the objective of the recommendation.
Open	Response rejected by ITSR	ITSR does not agree that the planned or alternate action meets the recommendation. The company or agency is advised of the rejection and requested to provide a revised response.
Open	Company claims closure	The company or agency claims that the planned or alternate action has been completed. The action has not yet been verified by ITSR. ITSR has not yet agreed that the item is closed.
Closed	Recommendation rejected	ITSR has determined through further analysis and review that the recommendation is not appropriate (i.e. will not achieve the desired safety outcomes) and has rejected the recommendation. It is therefore closed.
Closed	No longer applicable	The recommendation has been overtaken by events and action is no longer required. For example, a new technology has eliminated the reason for the recommendation, it has been superseded by other recommendations issued, or the operator affected has gone out of business.
Closed	Action verified	Completion of the planned or alternate action has been verified by ITSR through a compliance inspection or audit.
Closed	Action not verified	ITSR accepts that the planned or alternate action has been completed following a review of documentation submitted. Field verification is not necessary.
Closed	Subject to the implementation of the approved program or plan	A long term implementation plan has been approved. ITSR will monitor reported progress against the plan to ensure compliance with delivery schedule.

Appendix 3

Implementation plan: outstanding recommendations

The following section provides information only for recommendations that were closed in the last quarter or remain to be implemented. Those recommendations closed in previous quarters do not appear. A complete list of all recommendations is available on ITSR's website.

The government response and ITSR expectation sections of this table are the formal responses to the SCOI final report announced in February 2005.

Recommendation 32			
RailCorp should progressively implement, within a reasonable time, level 2 automatic train protection (ATP).			
Agency	Status	ITSR assessment	Target date
RailCorp	Open	Acceptable response	*28/02/2013

Government response

Requires further detailed review. The government supports the implementation of additional train protection systems. Implementation of level 2 ATP as detailed in the recommendation would involve the replacement of all line-side signalling on the RailCorp network with on-train control systems. In addition every intra- and inter-state train accessing the network would also need to be equipped with level 2 ATP technology.

RailCorp has already retained consultants to undertake evaluation and risk assessment regarding implementation of additional automatic train protection systems on the RailCorp network. RailCorp will work with the Australian Rail Track Corporation (ARTC) – which operates the interstate network – to develop, in conjunction with ITSR and interstate rail regulators, a national standard for an automatic train protection system.

RailCorp will also undertake a comprehensive review which will include a risk assessment, technical feasibility and cost benefit analysis of introducing level 1 ATP as well as level 2 ATP, as recommended by the Commission. Consistent with recommendation 34 any future options will need to be assessed by independent verification of acceptable risk.

ITSR expectation

A detailed technical review of available options. This is to be a project led by RailCorp. The major outcome of the project is to be a business implementation of ATP.

Status at 31 December 2012

The case to support a government decision concerning supply contracts awarded in February 2011 covers stage 1 implementation of the ATP program and involves:

- supply of ATP equipment for TfNSW's OSCAR and Tangara fleets
- installation of ATP equipment to 600 kilometres of the CityRail network
- a trial of ETCS level 2 between Sutherland and Cronulla.

* This is an indicative timeframe which has been agreed to by the agency responsible and ITSR.

+ This indicates a slippage with a revised date.

This indicates closure – subject to the implementation of an approved program or plan.

The interim target date of 31 August 2012 was achieved on 29 June 2012 which was earlier than originally expected. This is when the ATP system testing commenced using the ATP V set test train and the newly commissioned ATP trackside equipment between Gosford and Wyong. This testing will allow TfNSW's configuration of the ATP system to be fine tuned prior to the second phase of testing using an OSCAR train and a more extensive area of the track in 2013.

TfNSW expected trackside equipment to be fitted to the section of track from Berowra to Wyong by the end of February 2013. TfNSW has advised that the completion date of February 2013 is dependent on its contractor rectifying a non compliance preventing final Type Approval being granted for the lineside electronic units.

During November 2012, TfNSW's contractor achieved European design certification (used to establish Type Approval) for a key component of the trackside equipment which acts as the interface between the existing signalling system and the ATP system. The trackside construction between Berowra and Wyong is complete with the exception of the lineside electronic units (a non compliance preventing final Type Approval) which has the potential to delay the February 2013 milestone completion date.

The ATP installation on the first two OSCAR prototype trains is almost complete, with installation underway on the second train during the fourth quarter 2012. The two trains will be commissioned in the second quarter of 2013. These trains will be used for system testing operation once the trackside is commissioned.

Subject to the successful completion of these actions, TfNSW expects that the first OSCAR train fitted with ATP equipment, will be commissioned into passenger service and operate between Berowra and Wyong in 2014.

Stages 2 and 3 are to be implemented between 2013 and 2021, following the awarding of further contracts.

While implementation of ETCS level 1 has commenced, a trial of level 2 ETCS is still to occur and be assessed. Accordingly, ITSR has deemed that the status of recommendation 32 continue to be classified as *open – acceptable response*.

Recommendation 38

There must be compatibility of communications systems throughout the rail network. It is essential that all train drivers, train controllers, signallers, train guards and supervisors of trackside work gangs in New South Wales be able to communicate using the same technology.

Agency	Status	ITSR assessment	Target date
ITSR	Open	Acceptable response	30/04/2015

Government response

Supported and being implemented. The National Standing Committee on Transport endorsed the Australasian Railway Association (ARA) working with operators and regulators, including RailCorp and ITSR, to develop a national approach on communications systems, which has agreed minimum functionality requirements for train radio systems.

* This is an indicative timeframe which has been agreed to by the agency responsible and ITSR.

+ This indicates a slippage with a revised date.

This indicates closure – subject to the implementation of an approved program or plan.

RailCorp plans to implement a digital train radio system. An objective of this system is for it to be interoperable with existing analogue radio systems. Because of the technical complexities associated with achieving inter-operability, this has been a longer-term initiative and the first stage of its implementation will commence in 2005.

ITSR expectation

ITSR to ensure functionality and compatibility requirements are included in the national standard currently under development by the ARA. ITSR to ensure RailCorp/ARTC radio functionality for next generation technology meets compatibility requirements.

Status at 31 December 2012

This recommendation requires implementation of TfNSW's new digital train radio system (DTRS) and the development of a national communications standard by the Rail Industry Safety and Standards Board (RISSB).

In December 2010, RISSB published the *Railway Communications Standard – AS7660* for implementation, which contains agreed functionality and compatibility requirements for national railway communications. This was developed by the ARA in consultation with operators and rail safety regulators.

The new DTRS currently being designed will enhance communication between trains and network control in an emergency as well as enable communication between other staff for rail operations on the RailCorp network.

TfNSW advised that the DTRS project is progressing according to the delivery schedule and will achieve the target implementation date of 30 April 2015. Completion of the DTRS project includes completion of the DTRS fixed network and fit out of the train cabs.

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All rail safety workers are currently able to communicate with each other but not using the same technology.

Accordingly, ITSR has deemed that the status of recommendation 38 continue to be classified as *open – acceptable response*.

* This is an indicative timeframe which has been agreed to by the agency responsible and ITSR.

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This indicates closure – subject to the implementation of an approved program or plan.